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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,401	09/17/2003	Martin Aureliano Hassner	16869G-084800US	8952

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TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
ABRAHAM, ESAW T	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/666,401	HASSNER ET AL.	
	Examiner	Art Unit	
	Esaw T. Abraham	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *09/17/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The instant application having Application No. 10/666,401 has a total of 20 claims pending in the application, there are 2 independent claims and 18 dependent claims, all of which are ready for examination by the examiner.

INFORMATION CONCERNING OATH/DECLARATION

Oath/Declaration

The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

ACKNOWLEDGEMENT OF REFERENCES CITED BY APPLICANT

IDS

As required by M.P.E.P. 609(c), the applicant's submission of the Information Disclosure Statement dated 09/17/03 is acknowledged by the examiner and the cited references have been considered in the examination of the claims now pending. As required by M.P.E.P. 609(c), a copy of the PTOL-1449 initialed and dated by the examiner is attached to the instant office action.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere* CO., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim **1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sze (U.S. PN: 6,092,231) in view of Cox et al. (U.S. PN: 5,946,328).

As per claims 1 and 11:

Sze teaches a system for comparing any errors detected by an ECC unit with any errors detected by a CRC unit in a sector of bytes read from a disk in a disk drive. This system comprises an ECC unit, a CRC unit, a buffer unit and a disk drive controller and the ECC unit detects and corrects errors in the sector of bytes, the CRC unit checks the detected errors made by the error correction unit before the data in the sector is transmitted to a host computer and the CRC unit preferably receives the sector of bytes at the same time the ECC unit receives the sector of bytes. The buffer unit temporarily stores at least a portion of the sector of bytes read from the disk, and implements the corrections by the ECC unit to the sector of bytes. The disk drive controller controls the transmission of the sector of bytes from the buffer unit to the

host computer and further discards (overlap) the current sector of bytes within the buffer unit and attempts another read operation of the same sector if the errors found by the CRC unit do not match the errors found by the ECC unit. Sze further teaches a method of checking any errors detected by an ECC unit in a sector of bytes read from a disk in a disk drive and reading the sector of bytes into a CRC unit and an ECC unit, generating a CRC residue from data bytes within the sector, and generating an ECC residue from the sector, the CRC unit compares any error locations and error values found by the CRC unit with any error locations and error values found by the ECC unit and furthermore the method further involves discarding the current sector read by the disk drive, without sending it to a host computer, and attempting another read operation of the same sector if the error locations or error values detected by the CRC unit do not match the error locations or error values detected by the ECC unit. **It is noted, however, Sze does not explicitly teach** adding long block membership byte (LMB) to the ECC bytes. **On the other hand,** Cox et al. teach methods and means for the detection and correction of multibyte errors in long byte strings formatted into a two-level block code structure (see col. 1, lines 8-10). In addition, Cox et al. teach that the detection and correction of errors in linearly error correction encoded long byte strings, such as received from a communication system (see col.10, lines 31-35). **It would have been** obvious to one of ordinary skill in the art at the time of the invention to implement the teachings of Sze to include the method of adding or summing the long byte strings to the ECC bytes as taught by Cox et al. **One of ordinary skill** in the

art at the time of the invention would have been motivated in order to enhance the accuracy of the decoding process and the overall system performance.

As per claims 2-4:

These claims (2-4) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 1 above. They are therefore rejected as set forth above. In addition, Sze teaches that a disk drive controller controls the transmission of the sector of bytes from the buffer unit to the host computer. The disk drive controller discards the current sector of bytes within the buffer unit and attempts another read operation of the same sector if the errors found by the CRC unit do not match the errors found by the ECC unit (see col. 3, lines 27-35 and claim 1). Further, Sze teaches that when the CRC error flag (160) is set, the disk drive controller (126) aborts the read operation, discards the current sector 100, and attempts another read operation of the same sector (100) from the disk (116) (see col. 12, lines 45-48)

As per claims 5 and 8:

These claims (5 and 8) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 1 above. They are therefore rejected as set forth above. In addition, Sze in figure 6 teaches an event (296), the ECC unit (120) detects and corrects at least one error in the data (102), and the CRC unit (118) does not detect an error, a misconnection has occurred, and an abort 278 is initiated. The disk drive controller (126) discards the sector (100) in the function (280) and attempts another read operation of the same sector from the disk (116) in a function 282 (see col. 7, lines 59-65)

As per claims 6 and 7:

These claims (6 and 7) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 1 above. They are therefore rejected as set forth above. In addition, Sze teaches after data (102) and CRC (104) bytes are read into the CRC unit, the CRC residue generator (128) uses the data 102 and CRC 104 bytes to generate a CRC residue (or syndrome) using conventional methods. The generated CRC residue is the same byte length as the original CRC portion 104 stored in the sector 100 (see col. 7, lines 7-15).

As per claims 9 and 10:

These claims (9 and 10) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 1 above. They are therefore rejected as set forth above. In addition, Sze teaches a disk drive controller controls the transmission of the sector of bytes from the buffer unit to the host computer. The disk drive controller discards the current sector of bytes within the buffer unit and attempts another read operation of the same sector if the errors found by the CRC unit do not match the errors found by the ECC unit (see col. 3, lines 30-35).

As per claims 12-14:

These claims (12-14) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 11 above. They are therefore rejected as set forth above. In addition, Sze teaches that a disk drive controller controls the transmission of the sector of bytes from the buffer unit to the host computer. The disk drive controller discards the current sector of bytes within the buffer unit and attempts another read

operation of the same sector if the errors found by the CRC unit do not match the errors found by the ECC unit (see col. 3, lines 27-35 and claim 1). Further, Sze teaches that when the CRC error flag (160) is set, the disk drive controller (126) aborts the read operation, discards the current sector 100, and attempts another read operation of the same sector (100) from the disk (116) (see col. 12, lines 45-48).

As per claims 15 and 18:

These claims (15 and 18) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 11 above. They are therefore rejected as set forth above. In addition, Sze in figure 6 teaches an event (296), the ECC unit (120) detects and corrects at least one error in the data (102), and the CRC unit (118) does not detect an error, a misconnection has occurred, and an abort 278 is initiated. The disk drive controller (126) discards the sector (100) in the function (280) and attempts another read operation of the same sector from the disk (116) in a function 282 (see col. 7, lines 59-65).

As per claims 16 and 17:

These claims (16 and 17) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 11 above. They are therefore rejected as set forth above. In addition, Sze teaches after data (102) and CRC (104) bytes are read into the CRC unit, the CRC residue generator (128) uses the data 102 and CRC 104 bytes to generate a CRC residue (or syndrome) using conventional methods. The generated CRC residue is the same byte length as the original CRC portion 104 stored in the sector 100 (see col. 7, lines 7-15).

As per claims 19 and 20:

These claims (19 and 20) are at least rejected for their dependencies, directly or indirectly, on the rejected claim 11 above. They are therefore rejected as set forth above. In addition, Sze teaches a disk drive controller controls the transmission of the sector of bytes from the buffer unit to the host computer. The disk drive controller discards the current sector of bytes within the buffer unit and attempts another read operation of the same sector if the errors found by the CRC unit do not match the errors found by the ECC unit (see col. 3, lines 30-35).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US PN: 5,907,660 Innue et al.

US PN: 6,662,334 Stenfort, Ross J

US PN: 6,125,469 Zook et al.

Status of Claims in the Application

5. The following is a summary of the treatment and status of all claims in the application as recommended by M.P.E.P. 707.07(i):

Claims rejected in the Application

Per the instant office action, claims 1-20 have received a first action on the merits and are subject of a **first action non-final.**

Direction of Future Correspondences

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.

Important Note

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for after final communications.

Information regarding the status of an Application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or PUBLIC PAIR. Status information for unpublished applications is available through Private Pair only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Esaw Abraham

Art unit: 2133

GUY LAMARRE
PRIMARY EXAMINER